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INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

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## Complete if Known

Application Number	10/711279
Filing Date	September 7, 2004
First Named Inventor	Gary Haughton
Art Unit	
Examiner Name	

Attorney Docket Number 93177pusB

## U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
↑		US- 6,070,348	06-06-2000	Bianchetti	
↑		US- 6,007,237	12-28-1999	Latto	
		US- 5,947,784	09-07-1999	Cullen	
		US- 5,813,760	09-29-1998	Strong	
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		US- 5,100,242	03-31-1992	Latto	
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		US- 4,534,914	08-13-1985	Takahashi et al.	
		US- 4,440,616	04-03-1984	Houseman	
		US- 4,439,300	03-27-1984	Houseman	
		US- 4,319,971	03-16-1982	Good et al.	
		US- 4,302,318	11-24-1981	Mock	
		US- 4,189,362	02-19-1980	Dotson	
		US- 4,169,681	10-02-1979	Kato	
		US- 4,125,439	11-14-1978	Fleischmann et al.	
		US- 4,054,503	10-18-1977	Higgins	

## FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
RS	F1	DE	75 04 145	U	06-19-1975	Muller	
RS	F2	SU	858 898	A	08-30-1981	Umarnskii	
RS	F3	SU	967 541	A	10-23-1982	Fomenko	
RS	F4	FR	2 605 244	A	04-22-1988	Bionaz	
RS	F5	WO	02/083280	A1	10-24-2002	Arnosco Technology Ltd.	

Examiner Signature

T. Soohus

Date Considered

6-18-05

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		Number-Kind Code <sup>2</sup> ( <i>if known</i> )			
RS	FB	US- 3,912,237	10-14-1975	Ostberg et al.	
RS	FB	US- 3,560,366	02-02-1971	Fisher	
RS	FB	US- 3,214,148	10-26-1965	Thomas	
RS	FB	US- 2,661,938	12-08-1953	Kuentzel et al.	
RS	FB	US- 2,615,692	10-28-1952	Muller	
RS	FB	US- 2,557,503	06-19-1951	Hogaboom, Jr.	
RS	FB	US- 2,064,402	12-15-1936	Bannister et al.	
RS	FB	US- 1,408,596	03-07-1922	Heinrich	
RS	FB	US- 1,345,312	06-29-1920	Blake	
RS	FB	US- 567,503	09-08-1896	Pelatan & Clerici	
RS	FB	US- 52,890	02-27-1866	Ryerson	
		US-			

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		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> ( <i>if known</i> )				
RS	FB	JP	11 184 420	A	07-09-1999	Mitsubishi Electric Corp.		
RS	F7	GB	1 147 378	A	04-02-1969	Davis		
RS	F6	JP	63104638		05-10-1988	Yoshida Masatoshi		
RS	F9	DE	7416500		08-22-1974	Messerschmitt- Bolkow-Blohm		

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		Country Code <sup>3</sup> -Number <sup>1</sup>	Kind Code <sup>3</sup> (if known)				
165	110	FR	1 604 693	A	01-03-1972	Institut Merieux	

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				Art Unit	
				Examiner Name	
Sheet	4	of	5	Attorney Docket Number	93177pusB

NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
TS	N1	TURNER, J.S. Intermittent Release of Smoke from Chimneys. Journal of Mechanical Engineering Science 1960, Vol. 2, No. 2, pages 97-100.			
TS	N2	KENDIG, F. The Science of Smoke Rings and Doughnuts. Saturday Review, March 18, 1972, pages 40 and 44.			
TS	N3	MAXWORTHY, T. Turbulent Vortex Rings. J. Fluid Mech. 1974, Vol. 64, Part 2, pages 227-239.			
TS	N4	BAIRD et al. Velocity and Momentum of Vortex Rings in Relation to Formation Parameters. The Canadian Journal of Chemical Engineering, February 1977, Vol. 55, pages 19-26.			
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TS	N7	ROHATGI, A. Mixing Effects and Hydronamics of Vortex Rings. Ph.D. Thesis at McMaster University, Hamilton, Ontario, June 1978.			
TS	N8	PULLIN, D.I. Vortex Ring Formation at Tube and Orifice Openings. Phys. Fluids 22(3), March 1979, pages 401-403.			
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TS	N10	DIDDEN, N. On the Formation of Vortex Rings: Rolling-Up and Production of Circulation. Journal of Applied Mathematics and Physics (ZAMP) 1979, Vol. 30, pages 101-116.			
TS	N11	Ontario Ministry of the Environment, Water Resources Branch, Province of Ontario. Hamilton Harbour Study 1977, March 1981, pages 1-A11.			
TS	N12	ROHATGI et al. Gas Absorption at a Liquid Surface Agitated by Vortex Rings. The Canadian Journal of Chemical Engineering, June 1981, Vol. 59, pages 303-309.			

Examiner Signature	TS Sohco	Date Considered	6-18-05
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TKS	N15	SU 967 541 A (FOMENKO, Y.) 1982.10.23. (abstract), Soviet Patent Abstracts, Week 198334, London: Derwent Publications Ltd., AN 1983-745919.	
TKS	N16	AHMAD et al. Mixing of Stratified Liquids. Chem. Eng. Res. Des. May 1985, Vol. 63, pages 157-167.	
TKS	N17	LATTO, B. "New Mixer for Slurries and Stratified Fluids" In: Proc. 12 <sup>th</sup> Int. Conf. on Slurry Technology: March 31-April 3, 1987, New Orleans, Louisiana, U.S.A.. Edited by B. Sakkestad. Coal & Slurry Tech. Assoc., 1988, pages 165-73.	
TKS	N18	JP 63 104638 A (MASATOSHI). Patent Abstracts of Japan, Vol. 12, no 344 (C-528), 1988.05.10 (abstract).	
TKS	N19	LATTO et al. Mixing of Thermally Stratified Fluids by Injecting a Series of Vortex Rings - A Numerical Simulation. Trans IChemE, September 1990, Vol. 68, Part A, pages 457-463.	
TKS	N20	LATTO et al. "Use of Vortex Rings for Mixing". In: Industrial Applications of Fluid Mechanics 1990, ASME, New York, FED, Vol. 100, pages 79-86.	
TKS	N21	HUA, F. Numerical Simulation and Experimental Study of the Behaviour of Vortex Rings. Ph.D. Thesis at McMaster University, Hamilton, Ontario, 1994.	
TKS	N22	JP 11 184 420 A (MITSUBISHI ELECTRIC CORP.) 1999.07.09 (abstract). Japan Patent Abstracts, Section PQ, Week 199938, London: Derwent Publications Ltd., Class P85, AN 1999-448427.	
TKS	N23	JP 11 184 420 A (MITSUBISHI ELECTRIC CORP.) Patent Abstracts of Japan, Vol. 1999, no. 12, 1999.07.09 (abstract).	

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